

## Huff, Gwen

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**From:** Robert Siegfried [rsiegfried@valleywater.org]  
**Sent:** Monday, October 25, 2010 10:11 AM  
**To:** Agriculture Water Use Efficiency  
**Subject:** ag irrigation water measurement standards

AgWUE,

Some thoughts:

Background: I am an advocate of differential measurement standards, the application of which would be determined by irrigation infrastructure in the districts. Dave Ceppos raised the question of the equity of differing standards. I responded that there would be an equity of compliance effort in instituting best measurement practices in the Districts given existing infrastructures.

10608.48(b) provides for a range of options. Differential standards based on existing infrastructure constitute a range, and have an advantage of greater likelihood of meeting the cost effectiveness criterion within the districts. Irrigators would have the option of putting up with a given measurement accuracy in their districts or incurring costs to increase measurement accuracy, probably as water prices increase as a result of volumetric pricing. Measurement technology will likely continue to evolve, so DWR should provide for adaptation on the part of the districts.

15% ( $\pm$ ) accuracy appears unlikely to satisfy environmental lobby desires, but is probably adequate to inform a broad assessment of the agricultural sector's use of water sufficient for planning purposes. Differential standards have an advantage in that at least some districts would measure to higher standards of accuracy, improving the statewide average to less than 15%. Better measurement in districts where reasonably achievable may blunt criticism that will be incurred by a looser, uniform standard that can be characterized as a lowest common standard. Differential standards will foreground better technology, and this will keep pressure on recalcitrant districts as they have to cope with bringing up the rear in an environment of increasing accuracy.

Would there be a danger of a two tier system developing because districts in the 10,000 to 25,000 acres category are awaiting funding from a state agency unlikely to get funding from an overly indebted state government for a measurement campaign? DWR is probably currently operating below optimal staffing levels. Would the Department experience further difficulty arising from having to siphon funds from other programs to finance installation of measurement technology? Differential standards may enable measurement best practices, given the infrastructures, to proceed in 10k-25k districts. I frankly do not know whether districts in this category are a significant portion of all districts.

Lastly, and somewhat tangentially, there seem to be advocacies on both sides of the table of an unwarranted faith in the two-step,  $K_c \cdot E_{To}$ , reference evapotranspiration technology. Given spatial variations in soil hydraulic conductivity, uneven crop development across fields and differences in the development periods of crops temporally and spatially, the  $K_c \cdot E_{To}$  approach to irrigation scheduling is not accurate in estimating crop evapotranspiration to closer than  $\pm 15\%$ . This  $\pm 15\%$  estimation error incorporated in the foundational technology with which growers can respond to  $E_{Tc}$  estimation suggests the highest reasonably achievable accuracies be employed to measure irrigation water volumes.

Regards,

Bob Siegfried  
Santa Clara Valley Water District  
5750 Almaden Expressway  
San Jose CA 95118  
408 265 2607

